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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,211	06/20/2005	Hans-Joachim Quenzer	1033033-000027	5248

21839 7590 04/21/2009  
BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER
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BELYAEV, YANA

ART UNIT	PAPER NUMBER
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4122

NOTIFICATION DATE	DELIVERY MODE
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04/21/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,211	<b>Applicant(s)</b> QUENZER ET AL.	
	<b>Examiner</b> YANA BELYAEV	<b>Art Unit</b> 4122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 12-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/20/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of Group I in the reply filed on 16 March, 2009 is acknowledged. The traversal is on the ground(s) that due to the close relationship of the subject matter recited in Groups I-III, all claims together would overlap to an extent that there is no serious burden if examined together.

This is not found persuasive because a serious search burden is not the standard for restrictions made for 371 applications. The restriction was made under PCT Rule 13.1, which states that an international application should relate to only one invention or, if there is more than one invention, the inclusion of those inventions in one international application is only permitted if all inventions are so linked as to form a single general inventive concept (Article 17(3)(a); Rule 13; Section 206).

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-11 and 18-19 are pending as filed on 16 March, 2009.

***Specification***

2. The abstract of the disclosure is objected to because the abstract exceeds 150 words and uses legal phraseology such as "said." Correction is required. See MPEP § 608.01(b).
3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on 20 June, 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

***Claim Objections***

5. Claim 10 is objected to because of the following informalities: the word "lens" in the second line of claim 10 should be changed to "least" in order to fit into the sentence grammatically. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-11 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,951,119 (Quenzer hereinafter) and in view of *Compact Self-Aligning Assemblies with Refractive Microlens Arrays made by Contactless Embossing* (Schulze hereinafter).

**Regarding claim 1,** Quenzer discloses a method for treatment of the contour of the surface of at least one optical lens, which is made of glass or a glass-type material (Quenzer, column 1, lines 1-3), placing a means perfectly matching a plane section of the optical lens (Quenzer, Figure 1, component 2), and heating said optical lens to a temperature of at least the transformation temperature of said glass or glass-type material (Quenzer, column 3, lines 46-48), wherein pressure equalization prevails between said convex lens surface and said lens underside (Quenzer, column 3, lines 23-24), and after a certain period of time, during which said optical lens undergoes temperature treatment and subsequent cooling below said transformation temperature (Quenzer, column 4, lines 33-36), said means is removed from said optical lens (Quenzer, column 4, lines 36-40).

Quenzer does not specifically state that the at least one optical lens has a convex lens surface delimited by a circumferential line abutting on a plane section surrounding said circumferential line and which has a lens

underside facing the convex lens surface. Quenzer, furthermore, does not specifically state that the mounting tool would be placed along said circumferential line of the optical lens on said plane section is placed a means perfectly matching said circumferential line and at least laterally bordering said convex lens surface.

Schulze, discloses that at least one optical lens have a convex lens surface delimited by a circumferential line abutting on a plane section surrounding said circumferential line and which has a lens underside facing the convex lens surface (Schulze, Figure 2). Schulze, furthermore, discloses that the mounting tool would be placed along said circumferential line of the optical lens on said plane section is placed a means perfectly matching said circumferential line and at least laterally bordering said convex lens surface (Schulze, Figure 3).

It would have been obvious for one of ordinary skill in the art to apply the microlens array and mounting tool, as disclosed by Schulze, to the method disclosed by Quenzer. The rationale to do so would have been the motivation to provide a highly precise, cost effective production method for the production of both microlenses and alignment structures with the main advantage being easy replication (Schulze, page 31, paragraph 2).

**Regarding claim 10**, Quenzer does not specifically state that the at least one optical lens comprises a one-piece continuous array-like microlens

having a multiplicity of single optical microlenses, which are spaced apart, by plane sections, a means matching the arrangement and size of the circumference of the single microlenses is provided as a template, which is placed at least partly on said plane sections and surrounds said circumferential lines of said individual microlenses, and during said temperature treatment all said microlenses are heated uniformly and homogeneously.

Schulze, however, discloses that the at least one optical lens comprises a one-piece continuous array-like microlens having a multiplicity of single optical microlenses, which are spaced apart, by plane sections (Schulze, Figure 3, microlens component), a means matching the arrangement and size of the circumference of the single microlenses is provided as a template, which is placed at least partly on said plane sections and surrounds said circumferential lines of said individual microlenses (Schulze, Figure 3, LIGA mounting tool component), and during said temperature treatment all said microlenses are heated uniformly and homogeneously (Schulze, page 27, paragraph 2).

It would have been obvious for one of ordinary skill in the art to apply the method, as disclosed by Quenzer, to the microlens array and mounting tool disclosed by Schulze. The rationale to do so would have been the motivation to achieve a cost-effective solution for the alignment process of



micro-optic components, which usually result in very high costs (Schulze, page 25, paragraph 5).

**Regarding claims 18 and 19,** Quenzer discloses that the optical lens is a microlens (Quenzer, column 2, line 6) but not that the microlenses are equidistantly spaced.

Schulze discloses that the microlenses are equidistantly spaced (Schulze, Figure 3).

It would have been obvious for one of ordinary skill in the art at the time of the invention to have the microlens, as disclosed by Quenzer, equidistantly spaced, as disclosed by Schulze. The rationale to do so would have been the motivation to achieve good uniformity of focal length and homogeneity of high quality within the arrays (Schulze, page 28, paragraph 2 and 3).

**Regarding claim 2,** Quenzer i discloses that the temperature and the period of time of said temperature treatment are selected according to the degree of change of the surface contour (Quenzer, column 2, lines 46-49).

**Regarding claims 3 and 4,** Quenzer discloses varying the pressure acting on said convex lens surface during said temperature treatment by changing the gas pressure, respectively air pressure, by stating that when the partial pressure, of air or nitrogen (Quenzer, column 9, line 14), inside the interstices exceeds the surrounding atmospheric pressure during the

subsequent flow process at elevated temperatures, which can be interpreted to mean that the pressure steadily increases during the temperature treatment (Quenzer, column 9, lines 15-20).

**Regarding claim 5,** Quenzer discloses pressing said means firmly against the planar glass material to create an intimate bond (Quenzer, column 9, lines 7-10).

While Quenzer does not specifically disclose using force to press firmly, it would be necessary to use force to create an intimate bond. Furthermore, Quenzer does not disclose pressing said means against said circumferential line, but it would have been obvious to one of ordinary skill in the art at the time of the invention that in order to treat the existing convex contours of the glass surface, it would be necessary to press said means against said circumferential line.

**Regarding claims 6 and 7,** Quenzer discloses that the optical lens is produced by means of a glass-flow process (Quenzer, column 3, lines 50-57) and has as a result of said process an extremely steep elliptical gradient in the region of said circumferential line (Quenzer, Figures 2 and 5), and said temperature treatment is conducted in conjunction with said means bordering said circumferential line in such a manner that said extremely steep elliptical gradient is reduced or completely eliminated and in such a

manner that the lateral geometric dimensions of said optical lens are retained (Quenzer, column 8, lines 22-35).

**Regarding claim 8,** Quenzer discloses that the convex lens surface of said optical lens is raised above a horizontal plane during temperature treatment (Quenzer, Figure 5 and column 8, lines 56-65).

**Regarding claim 9,** Quenzer discloses that said means is brought into contact with said optical lens without wetting the surface (Quenzer, column 6, lines 2-7).

**Regarding claim 11,** Quenzer discloses that said temperature treatment occurs in such a manner that a reduction of said convex lens surface stems solely from the surface tensions acting along said convex lens surface, with the lens material being forced out of the regions of said exceedingly steep elliptical gradient on the convex-side into other regions of the lens body (Quenzer, column 5, lines 30-41).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YANA BELYAEV whose telephone number is (571)270-7662. The examiner can normally be reached on M-Th 8:30am - 6pm; F 8:30 am- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. B./  
Examiner, Art Unit 4122

/Timothy J. Kugel/  
Primary Examiner, Art Unit 1796